

# ABSTRACT

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**Title:** The frequency of HLA antigens in the group of plasma donor of the Transfusion Department, University Hospital, Hradec Králové

**Bachelor thesis**

**Charles University, Faculty of Pharmacy in Hradec Kralove**

**Field of study:** Medical Laboratory Technician

**Background:** The major objective of this study is the statistical data processing in order to determine the frequency of HLA antigens in the group of plasma donors.

**Methods:** The serological typing of HLA antigens using the lymphocytotoxic test was performed among plasma donors of the Transfusion Department of the University Hospital Hradec Kralove.

On a sample group of 200 plasma donors was determined the frequency of HLA antigens by blood group and gender on the basis of a serological examination. The collected data of the observed sample of aforementioned group were processed using Microsoft Excel in relation to the gender and blood group of the donor.

**Results:** It was discovered that within the observed sample there is the highest frequency of HLA-A antigens 2, 1 and 3; HLA-B antigens 7, 44, 35 and HLA-C antigens 7, 6, 4. The most frequented combination of HLA antigens within the observed sample of 200 plasma donors regardless blood group and gender are combinations of HLA-A 1,2 (15x) HLA-A 2,3 (15x), HLA-B 8,44 (8x), HLA-B 7, 8 (7x), HLA-C 7,- (30x), HLA-C 6,- (12x).

The results were compared to the frequency of HLA antigens among donors registered in the Czech National Marrow Donor Registry. The highest frequencies of HLA antigens among these donors present HLA antigens HLA-A 2, 1, 3. HLA-B antigens 7, 44, 35. HLA-C antigens 7, 4, 3. The most frequented combinations of HLA antigens among donors registered in the Czech National Marrow Donor Registry regardless blood group and gender are combinations of HLA-A 1,2 (1467x), HLA-A 2,- (1447x), HLA-B 35,44 (462x), HLA-B 7,44 (461x), HLA-C 7,- (2953x), HLA-C 4,- (1893x).

**Conclusions:** Despite a relatively small set of plasma donors, the occurrence of HLA antigens among plasma donors in University Hospital Hradec Kralove did not differ from the frequency of HLA antigens of plasma donors in the database of the Czech National Marrow Donor Registry.

**Keywords:** MHC, HLA antigens, HLA system, immunology, plasma donor, immune system, adaptive and innate immunity, T-lymphocytes, B-lymphocytes, serological determination